## Review Form 3

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| Journal Name: | **Asian Journal of Advances in Agricultural Research** |
| Manuscript Number: | **Ms_AJAAR_128542** |
| Title of the Manuscript: | **Pigeon pea (Cajanus cajan (l.) Millsp) based cropping systems for sustainable production - a comprehensive review** |
| Type of the Article | **Review Article** |

**General guidelines for the Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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**Important Policies Regarding Peer Review**

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**PART 1: Comments**

| | **Reviewer's comment** | **Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
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| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | This manuscript holds significant value for the scientific community as it offers a comprehensive review of pigeon pea-based intercropping systems, highlighting their potential to achieve sustainable agricultural intensification. By synthesizing findings on productivity, resource efficiency, and ecological benefits, it provides crucial insights into optimizing intercropping practices for diverse agro-ecosystems. The integration of advanced management strategies such as INM and IPM underscores its relevance in addressing global challenges of food security, soil health degradation, and pest management. Moreover, the manuscript serves as a valuable resource for researchers, policymakers, and practitioners seeking sustainable approaches to improve agricultural resilience and profitability. | |
| **Is the title of the article suitable?**<br>**(If not please suggest an alternative title)** | The current title, *"Pigeon pea (Cajanus cajan (L.) Millsp) based cropping systems for sustainable production - a comprehensive review"*, effectively conveys the subject of the manuscript. However, it could be made more concise and impactful to attract a wider audience. Here are some alternative suggestions:<br><br>1. "Pigeon pea-based cropping systems: a path to sustainable agriculture"<br>2. "Sustainable agriculture through pigeon pea-based intercropping systems: a comprehensive review"<br>3. "Enhancing sustainability with pigeon pea cropping systems: insights and practices"<br>4. "Optimizing pigeon pea-based systems for sustainable agricultural intensification"<br><br>These alternatives maintain clarity while emphasizing sustainability and the broader relevance of the research. | |

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| **Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.** | The abstract is comprehensive, covering the key aspects of the study, including productivity, resource efficiency, ecological benefits, and the role of management practices like INM and IPM. However, there are a few areas that could be refined or supplemented to enhance its clarity and balance:<br><br>**Suggestions for Additions:**<br><br>1. **Broader Implications**:<br>Consider mentioning how these systems could help in achieving global sustainability goals, such as contributing to food security and combating climate change. This will position the research within a larger context and make it more impactful.<br>2. **Challenges or Limitations**:<br>Briefly noting any challenges in implementing pigeon pea intercropping systems (e.g., labor intensity, initial costs, or compatibility with specific agro-climatic conditions) would add depth and balance to the abstract.<br>3. **Geographical Scope**:<br>Clarify whether the findings are region-specific or applicable across diverse agro-ecological zones. Mentioning the relevance for specific regions (e.g., tropical and subtropical regions) could improve its utility for targeted audiences.<br><br>**Suggestions for Deletions/Streamlining:**<br><br>1. **Repetitive Phrasing**:<br>Some ideas, such as the benefits of INM and pest reduction through intercropping, are repeated. Streamlining these sections will enhance readability and allow space for additional points.<br>2. **Technical Details**:<br>While details such as yields (e.g., 17.70 q $ha^{-1}$) and monetary returns (₹23,867 $ha^{-1}$) are useful, consider whether they add value to the abstract or if they might be better suited for the main text. This could make the abstract less dense.<br><br>**Summary:**<br><br>Overall, the abstract is detailed and well-structured but could benefit from slight reorganization and the addition of broader implications and limitations. These adjustments would strengthen its appeal and provide a more balanced overview. | |
| **Is the manuscript scientifically, correct? Please write here.** | The manuscript titled "Pigeon pea (Cajanus cajan (L.) Millsp) based cropping systems for sustainable production - a comprehensive review" presents a detailed examination of pigeon pea cropping systems. However, it requires significant revisions to enhance its scientific accuracy and clarity. Below is an analysis of the key issues identified in the text.<br>**Scientific Accuracy**<br>**Data Sources and Citations:**<br>The manuscript makes several claims that lack proper citations, which undermines their credibility. For example, statements regarding the benefits of transplanting pigeon pea seedlings and the effects of intercropping with other crops need specific references to support these assertions.<br>**Inconsistencies and Contradictions:**<br>There are contradictions within the manuscript, particularly concerning the efficiency of pigeon pea as a sole crop versus its performance in intercropping systems. The introduction states that pigeon pea is inefficient as a sole crop due to slow initial growth, while later sections indicate situations where sole cropping yields better results than intercropping.<br>**Overgeneralizations:**<br>Some statements are overly broad and need qualification. For instance, the claim that intercropping systems significantly enhance productivity should be supported with specific examples and conditions under which this is true.<br>**Missing Information:**<br>The manuscript lacks critical details such as experimental conditions (location, soil type, climate), specific crop varieties used, and statistical methods employed. This information is essential for understanding the context of the findings and for replicability. | |

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| | **Terminology and Units:**<br>Inconsistent use of units (e.g., q/ha vs. kg/ha) and abbreviations can confuse readers. Additionally, some terms like "PEY" (pigeon pea equivalent yield) and "LER" (land equivalent ratio) are not clearly defined.<br>**Clarity and Structure**<br>**Repetitive Information:**<br>The manuscript contains redundant information, particularly in sections discussing intercropping systems. Streamlining this content would improve readability.<br>**Poor Flow and Organization:**<br>The flow of ideas is often disjointed. A more logical structure with clear transitions between sections would enhance coherence.<br>**Lack of Conciseness:**<br>Many sentences are overly complex, making them difficult to read. Simplifying language and breaking down long sentences will improve clarity.<br>**Grammatical Errors and Typos:**<br>Numerous grammatical errors and typographical mistakes detract from the professionalism of the manuscript. A thorough proofreading process is necessary to correct these issues.<br>**Recommendations for Improvement**<br>**Conduct a Thorough Literature Review:**<br>Gather relevant research articles to substantiate claims made in the manuscript and ensure all sources are cited accurately.<br>**Refine the Methodology:**<br>Clearly outline the experimental design, including details on location, soil type, climate conditions, crop varieties used, treatments applied, and statistical analysis methods.<br>**Improve Clarity and Conciseness:**<br>Revise sections to enhance the flow of ideas, eliminate redundancy, and simplify overly complex sentences.<br>**Address Inconsistencies:**<br>Review the manuscript carefully to identify and resolve any inconsistencies or contradictions present in the text.<br>**Ensure Accuracy:**<br>Double-check all data, calculations, and citations for accuracy while maintaining consistent units and abbreviations throughout.<br>**Proofread Thoroughly:**<br>Undertake a comprehensive proofreading process to eliminate grammatical errors, typos, and formatting inconsistencies.<br>In summary, while this manuscript has potential as a valuable contribution to research on pigeon pea-based cropping systems, it necessitates significant revisions to address the outlined issues related to scientific accuracy, clarity, and rigor. Seeking feedback from experienced researchers in agronomy or crop science prior to resubmission is advisable for further enhancement of the work. | |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | The references provided are good but a little outdated in some areas. Updating them with more recent studies and broadening the geographical scope will strengthen the manuscript by reflecting the latest research trends, technologies, and global knowledge in the field of agricultural systems. Adding studies with specific focus on environmental sustainability and newer farming practices (such as precision agriculture and digital farming tools) would make it more comprehensive. | |

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| **Is the language/English quality of the article suitable for scholarly communications?** | The language and overall quality of English in the manuscript is generally clear and understandable, but there are several areas where improvements can be made for better flow, conciseness, and clarity. Here are some specific observations and recommendations:<br>**Strengths:**<br>**Technical Terminology:**<br>The manuscript appropriately uses technical terms related to agricultural systems, pest management, and nutrient management. It is well-targeted to an audience familiar with the field of agricultural sciences.<br>**Clear Structure:**<br>The manuscript is structured logically, with distinct sections for crop rotation, pest management, and conclusions, making it easy to follow.<br>**Conciseness:**<br>The manuscript presents detailed information without excessive repetition, which is appropriate for scholarly communication.<br>**Areas for Improvement:**<br>**Grammar and Sentence Structure:**<br>Some sentences are long and complex, which could be made more concise to improve readability. For example:<br>**Example:** *"Pigeon pea crop rotation involves alternating pigeon pea with other crops like finger millet, soybean, or groundnut, enhancing soil fertility, reducing pest buildup, and improving overall crop yields through diverse cropping systems."*<br>This sentence could be split into shorter ones or revised for clarity.<br>Suggested revision: "Pigeon pea crop rotation alternates between pigeon pea and other crops, such as finger millet, soybean, or groundnut. This enhances soil fertility, reduces pest buildup, and improves crop yields through diverse cropping systems."<br>**Tense Consistency:**<br>The article switches between past and present tense in certain parts. In scientific writing, it is important to maintain consistency in the use of tense, especially when describing experiments and their outcomes.<br>For example, the study by Vijaymahantesh (2012) uses past tense ("found"), but in some cases, a more active voice in the present tense would increase clarity.<br>**Suggested revision:** "Vijaymahantesh (2012) reports that conventional tillage results in significantly higher yields of pigeon pea compared to minimum tillage..."<br>**Word Choice and Stylistic Suggestions:**<br>**Example:** *"A similar trend was observed in finger millet."*<br>Instead of "a similar trend," consider being more specific: "The same trend was seen in finger millet," or "Finger millet showed similar results."<br>**Example:** *"This increase in yield was attributed to better weed control through repeated tillage operations."*<br>You could enhance precision: "The yield increase was linked to improved weed control achieved through repeated tillage operations."<br>**Clarity and Sentence Flow:**<br>Some sentences are dense and could be clearer by removing superfluous phrases or reordering them for better readability.<br>**Example:** "In terms of nutrient management, the combination of 50% nitrogen through FYM and 50% nitrogen through glyricidia resulted in higher seed and straw yields (1198 and 3021 kg/ha) compared to 100% nitrogen through urea (491 and 1428 kg/ha)."<br>Suggested revision: "The combination of 50% nitrogen from FYM and 50% nitrogen from glyricidia yielded higher seed (1198 kg/ha) and straw (3021 kg/ha) yields compared to 100% nitrogen from urea (491 and 1428 kg/ha)."<br>**Consistency of Terms:**<br>In some instances, the manuscript uses different terminology for the same concept. For example, *"integrated nutrient management (INM)"* and *"nutrient management"* appear interchangeably. Ensure consistency by either sticking to one term or clearly defining them if they mean different things.<br>**Punctuation and Citation Style:**<br>Ensure punctuation around citation references is consistent. For example, when citing within sentences, some areas should properly place commas around the years:<br>*"Ganapathi et al. (2015) found that pigeon pea + sorghum recorded..."*<br>Ensure that punctuation around citation parentheses is standard throughout the manuscript.<br>**Suggestions for Improvement:**<br>**Revise Long Sentences:** Break long sentences into shorter, simpler ones for better comprehension. This improves readability and avoids potential ambiguity.<br>**Active Voice:** Use more active voice, as it makes the writing clearer and more engaging. This is especially | |

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| | important for scientific writing, where the subject of action should be made clear.<br>**Clarity in Descriptions:** Avoid unnecessary jargon and be direct, especially when explaining results and processes.<br>**Proofreading:** Careful proofreading can eliminate any subtle grammar issues, awkward phrasing, or inconsistencies in the language.<br>**Conclusion:**<br>The manuscript is mostly well-written but could benefit from the following improvements:<br>- Consistency in tense usage.<br>- Simplification of long sentences.<br>- More precise word choices.<br>- Improved sentence flow and grammar.<br>These adjustments would elevate the manuscript's quality and make it more suitable for scholarly communication. | |
| **Optional/General** comments | **Potential for Broader Impact:**<br>The manuscript addresses important topics in sustainable agricultural practices, particularly crop rotation and integrated nutrient management, which have significant implications for food security and environmental sustainability. It would benefit from an expanded discussion of how the findings could be applied to other regions with similar agro-ecosystems, particularly in developing countries. This could enhance the broader impact of the study and appeal to a wider audience.<br>**Future Research Directions:**<br>It may be useful to mention potential avenues for future research in integrated pest and nutrient management or crop rotation practices. For instance, exploring the role of crop diversity in pest management, or testing the long-term effects of specific nutrient management strategies on soil health and productivity, could provide more insights into sustainable farming systems.<br>**Clarity of Objectives:**<br>In some sections, it might be helpful to explicitly outline the primary objectives or hypotheses at the beginning of the manuscript. This will guide the reader through the main findings and interpretations and help reinforce the relevance of each experimental approach taken in the study.<br>**Statistical and Experimental Data:**<br>Providing more detailed descriptions of statistical analyses, such as the statistical tests used, significance levels, and how these were applied to interpret the results, would increase the robustness of the findings. This can support the validity of the conclusions and make the research more transparent.<br>**Visual Aids and Figures:**<br>While the manuscript presents results effectively, adding some visual aids like graphs, tables, or diagrams to illustrate trends (e.g., yields over time or nutrient management comparisons) would make the manuscript more accessible and enhance reader comprehension.<br>**Interdisciplinary Linkages:**<br>Given the interdisciplinary nature of the topics covered—agriculture, soil science, pest management, and nutrient management—the manuscript could benefit from a more explicit discussion of how these domains intersect and reinforce one another in the context of sustainable farming.<br>**Ethical Considerations:**<br>It would be beneficial to briefly mention any ethical considerations associated with the study, particularly concerning the use of agrochemicals, land management, and long-term sustainability. Although this is not always necessary in studies focused on agricultural practices, an acknowledgement of these considerations could enrich the manuscript.<br>**Implication for Policymakers:**<br>A discussion of how the findings could influence agricultural policies, especially in developing countries with similar agricultural practices, would be highly valuable. This could include suggestions on how local governments or agricultural extension services could support the adoption of these practices.<br>**Final Remarks:**<br>Overall, the manuscript presents valuable research with considerable implications for sustainable farming practices. The primary suggestions for improvement lie in enhancing clarity, tightening the language, and expanding on certain areas for future research or application. Implementing these changes would help strengthen the manuscript and make it suitable for high-quality scholarly journals. | |

## Review Form 3

**PART 2:**

| | **Reviewer's comment** | **Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
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| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in details)* | |

**Reviewer Details:**

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| Department, University & Country | **University of Antananarivo, Madagascar** |